LISTING OF CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A process for treating biological targets within the fluid of a biological organism, comprising the steps of:
   (1) dividing a fluid into a first portion and a second portion,
   (2) feeding said first portion of said fluid into a first chamber, and second portion of said fluid into a second chamber, wherein:
      1. said first chamber is disposed within said second chamber, and
      2. said first chamber and said second chamber each have a maximum cross-sectional dimension of 100 microns, and an inner wall comprised of a target specific binding agent,
   (3) modifying the wall shear rate of said first portion of said fluid within said first chamber, and of said second portion of said fluid within said second chamber, so that said wall shear rate of each of said first portion and said second portion is reduced to a wall shear rate of less than about 200 seconds -1, thereby producing a first reduced shear rate fluid and a second reduced shear rate fluid, wherein said first reduced shear rate fluid is comprised of a first biological target, and said second reduced shear rate fluid is comprised of a second biological target,
   (4) marginating said first biological target, to produce a marginated first biological target, and
   (5) marginating said second biological target to produce a marginated second biological target.
2. (Original) The process as recited in claim 1, further comprising the step of modifying a morphological characteristic of said marginated first biological target.

3. (Original) The process as recited in claim 2, further comprising the step of modifying a morphological characteristic of said marginated second biological target.
4. (Original) The process as recited in claim 1, wherein said marginated first biological target comprises a stem cell.
5. (Original) The process as recited in claim 4, further comprising the step of differentiating said marginated first biological target.
6. (Original) The process as recited in claim 4, further comprising the step of modifying the morphological characteristic of said biological target.
7. (Original) The process as recited in claim 1, wherein said first chamber and said second chamber each are comprised of a polymeric matrix.
8. (Original) The process as recited in claim 1, further comprising the step of dividing said fluid into a third portion and feeding said third portion into a third chamber, wherein said third chamber is disposed within said second chamber.
9. (Original) The process as recited in claim 1, further comprising the steps of:
    (1) contacting said marginated first biological target with said target specific binding agent, producing a first reduced flow velocity biological target,
    (2) contacting said marginated second biological target with said target specific binding agent, thereby producing a second reduced flow velocity biological target, and
    (3) devitalizing said first reduced flow velocity biological target, thereby producing a first devitalized biological target.
10. (Original) The process as recited in claim 9, wherein said first biological target and said second biological target are each independently selected from the group consisting of a circulating progenitor cells, stems cells, metastatic cancer cells, human immunodeficiency virus infected cells, viruses, virus infected cells, macrophages, bacteria, bacteria-infected cells, leukocytes, neutrophils, and mixtures thereof.

11. (Original) The process as recited in claim 9, wherein said first devitalized biological target is killed.

12. (Original) The process as recited in claim 9, wherein said first devitalized biological target is removed from said fluid.

13. (Original) The process as recited in claim 9, wherein said first biological target is a metastatic cancer cell.

14. (Original) The process as recited in claim 8, wherein said third chamber is concentric with said first chamber.

15. (Currently Amended) An apparatus for treating biological targets within the fluid of a biological organism, comprising:

(a) means for dividing a fluid into a first portion of fluid and a second portion of fluid,

(b) a first chamber, a second chamber, and a third chamber, wherein said first chamber and said second chamber are disposed within said third chamber;

(c) means for feeding said first portion of fluid into said first chamber,

(d) means for feeding said second portion of fluid into said second chamber,

(e) ~~(f)~~ means for modifying the wall shear rate of said first portion of fluid and of said second portion of fluid, so that said wall shear rate of each of said first portion of fluid and said second portion of fluid is reduced to a wall shear rate of less than about 200 seconds -1, wherein said first portion of fluid is comprised of a first biological target,

(f) ~~(g)~~ means for marginating said first biological target to produce a marginated first biological target.

16. (Currently Amended) An apparatus for treating biological targets within the fluid of a biological organism, comprising:

(a) means for dividing a fluid into a first portion of fluid and a second portion of fluid,

(b) a first chamber, a second chamber, wherein said first chamber is disposed within said second chamber,

(c) a first opening for feeding said first portion of fluid into said first chamber,

(d) a second opening for feeding said second portion of fluid into said second chamber,

(e) ~~(f)~~ wherein said first and second openings have a shape such that they modify the wall shear rate of said first portion of fluid and of said second portion of fluid, so that said wall shear rate of each of said first portion of fluid and said second portion of fluid is reduced to a wall shear rate of less than about 200 seconds -1, wherein said first portion of fluid is comprised of a first biological target, and

(f) ~~(g)~~ wherein said first chamber is comprised of a target specific binding agent wherein said agent marginates said first biological target to produce a marginated first biological target.

17. (Original) A process for treating biological targets within the fluid of a biological organism, comprising the steps of:

(a) feeding a fluid into an assembly wherein said assembly is comprised of a first chamber, wherein said first chamber has an inner wall comprised of a target specific binding agent, wherein said fluid comprises a biological target and said first chamber is disposed within a second chamber,

(b) modify the flow dynamics of said fluid by allowing said target specific binding agent to bind with said biological target,

(c) causing said biological target within said fluid to migrate into a capture zone wherein said capture zone is disposed within said second chamber.

18. (Original) The process as recited in claim 17, wherein said biological target is independently selected from the group consisting of circulating progenitor cells, stems cells, metastatic cancer cells, human immunodeficiency virus infected cells, viruses, virus infected cells,

macrophages, bacteria, bacteria-infected cells, leukocytes, neutrophils, and mixtures thereof.

19. (Original) The process as recited in claim 17, wherein said biological target comprises a stem cell.

20. (Original) The process as recited in claim 19, wherein a morphological characteristic of said biological target is modified in such a way so as to differentiate said biological target.

21. (Original) The process as recited in claim 17, wherein a morphological characteristic of said biological target is modified in such a way so as to devitalize the biological target.

22. (Original) The process as recited in claim 19, wherein said each of said biological target is removed from said second chamber.

23. (Original) The process as recited in claim 18, wherein said inner wall is comprised of pores with a pore size of at least about 1 micron.

24. (Original) The process as recited in claim 19, wherein said first chamber and said second chamber are concentric.

25. (Original) The process as recited in claim 17, wherein said assembly further comprises a third chamber.

26. (Original) The process as recited in claim 17, wherein said inner wall is permeable to said biological target.

27. The process as recited in claim 25, wherein said third chamber is not concentric with said first chamber and said third chamber is disposed within said second chamber.

28. (Original) The process as recited in claim 27, wherein said third chamber has an inner wall comprised of a target specific binding agent.

29. (Original) The process as recited in claim 25, wherein said third chamber is disposed within said first chamber.

30. (Original) The process as recited in claim 29, wherein said third chamber has an inner wall comprised of a target specific binding agent.

31. (Original) An implantable isolation system comprised of viable biological tissue and, disposed within and contiguous with said tissue, an assembly,

wherein said assembly is comprised of a first chamber and a second chamber, wherein:

(a) each of said first chamber and said second chamber is comprised of a first inner wall and a second inner wall, respectively,

(b) each of said first chamber and said second chamber has a maximum cross-sectional dimension of less than about 100 microns,

(c) said first inner wall of said first chamber is comprised of target specific binding agents,

(d) said assembly is comprised of means for dividing a biological fluid into a first portion and a second portion wherein said first portion is allowed to flow into said first chamber and said second portion is allowed to flow into said second chamber,

(e) said assembly is comprised of means for reducing the wall shear rate of said first portion, as it flows through said first chamber, to a wall shear rate of less than about 200 seconds -1,

(f) said assembly is comprised of means for reducing the wall shear rate of said second portion, as it flows through said chamber, to a wall shear rate of less than about 200 seconds -1.